NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200
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AAMA/WDMA/CSA 101/I.S.2/A440-17

TEST REPORT SUMMARY

Rendered to:

Climate Guard Manufacturing
2622 North Pulaski Road
Chicago, IL 60639

PRODUCT TYPE: Tilt Double Hung

SERIES/ MODEL: "1199"

Title	Summary of Results
Primary Product Designator AAMA/WDMA/CSA 101/I.S.2/A440-17	ClassLC-PG40: Size tested 1118 x 1905 mm (~44 x 75 in) - Type H
Design Pressure (17-11)	±1920 Pa (±40.10 psf)
Operating Force (in motion$_{max}$)	142 N (32 lbf)
Air Infiltration	1.1 L/s/m^2 (0.21 cfm/ft^2)
Water Penetration Resistance Test Pressure	290 Pa (6.06 psf)
Uniform Load Structural Test Pressure (17-11)	±2880 Pa (±60.15 psf)
Forced Entry Resistance	ASTM F588-14 - Grade 10 Pass

Test Completed: 03/01/23

Reference must be made to Report No. NCTL-110-26031-1 dated 03/03/23 for complete test specimen description and data.

For National Certified Testing Laboratories

Justin L. Bupp
Laboratory Manager

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AAMA/WDMA/CSA 101/I.S.2/A440-17

STRUCTURAL PERFORMANCE TEST REPORT

NCTL-110-26031-1

REPORT TO:
Climate Guard Manufacturing
2622 North Pulaski Road
Chicago, IL 60639

REPORT DATE: 03/03/23

PRODUCT TYPE: TILT DOUBLE HUNG

SERIES/ MODEL: "1199"

STRUCTURAL PERFORMANCE TEST REPORT

Report Number	NCTL-110-260321-1
Report Date	03/03/23
Report To	Climate Guard Manufacturing 2622 North Pulaski Road Chicago, IL 60639
Date Testing Started **Date Testing Completed**	02/28/23 03/01/23
Specification	AAMA/WDMA/CSA 101/I.S.2/A440-2017 NAFS - North American Fenestration Standard/Specification for windows, doors, and skylights
Performance Results	AAMA/WDMA/CSA 101/I.S.2/A440-2017 Class LC-PG40: Size tested 1118 x 1905 mm (~44 x 75 in) - Type H

Description of Specimen Tested

Note: All dimensions are in the order (Width x Height x Thickness) unless otherwise noted.

Model/ Series	"1199"
Configuration	Tilt Double Hung
Frame Size	Overall 1118 mm x 1905 mm (44" x 75")
Top Sash Size	1021 mm x 943 mm (40.1875" x 37.125")
Bottom Sash Size	1038 mm x 946 mm (40.875" x 37.25")
Viewing Area	(2) 965 mm x 860 mm (38" x 33.875")
Frame & Sash Type	Extruded aluminum with poured urethane thermal breaks
Joint Construction	Frame & Sash (2) Screw butt type with gaskets at the sill
Glazing Components	
Overall	19.15 mm (0.754") nominal
Glass Thickness	(2) Lites of 3 mm (0.117") nominal annealed glass
Spacer Type/Size	13.21 mm (0.520") Coated U-shaped steel spacer (Type CU-D)
Glazing System	Channel glazed with a flexible vinyl glazing bead

Weatherstrip

Type	(1) Strip center fin
Size	6.86 mm (0.270”) high
Location	Head, sill, top rail and bottom rail
Type	(2) Strips center fin
Size	6.86 mm (0.270”) high
Location	Stiles and interior meeting rail
Type	(1) Strip bulb vinyl
Location	Bottom rail

Operating Hardware

Locks

Type	Metal cam-type sweep lock
Location	305 mm (12”) From each end of the interior meeting rail
Type	Metal snap lock
Location	229 mm (9”) From each end of the top rail

Keeper

Type	Metal
Location	Exterior meeting rail at the lock locations
Type	Extruded
Location	Head

Balance

Type	Spiral
Location	Jamb tracks

Pivot Bar

Type	Stamped metal
Location	Each end of the bottom rail and exterior meeting rail fastened with (1) screw

Auxiliary

Type	Rigid vinyl jamb liner
Location	Center jamb leg
Type	Rigid vinyl sash stop
Location	Top of interior jamb track and bottom of the exterior jamb track
Type	Thermally broken extruded aluminum head expander
Location	Head

Reinforcement No reinforcement employed

Weep Description No apparent weeps employed

Interior Surface Finish Brown painted aluminum

Exterior Surface Finish Brown painted aluminum

Sealant

Location	Frame and sash corners
Material	Small joint sealant

Insect Screen

Size	1067 mm (42”) Wide by 953 mm (37.5”)
Corner Construction	Mitered with plastic corner keys
Material	Fiberglass mesh with solid spline, (2) jamb retainer springs, (1) strip flexible vinyl leaf at the top rail and (1) strip poly pile at the bottom rail

Installation Method The window was installed in a 51 mm x 254 mm (2" x 10") spruce-pine-fir lumber test buck and was sandwiched between 12.7 mm x 12.7 mm (0.5" x 0.5") wood blind stops fastened with evenly spaced staples. The exterior perimeter was sealed with elastomeric sealant. The interior perimeter employed spray foam

Test Results - AAMA/WDMA/CSA 101/I.S.2/A440-2017

Paragraph	Test
9.3.1	Operating Force and Force to Latch - Method B (Force Gauge) ASTM E2068-00(08)

Initiate Motion	= 182 N	(41 lbf)
Allowed (Normal Use$_{08}$)	= 230 N	(51.71 lbf)
Maintain Motion - Opening	= 142 N	(32 lbf)
Maintain Motion - Closing	= 133 N	(30 lbf)
Allowed (Normal Use$_{08}$)	= 180 N	(40.47 lbf)
Latches	= 40 N	(9 lbf)
Allowed	= 100 N	(22.5 lbf)

NOTE: The results above represent the maximum force among all sash tested.

Paragraph	Test
9.3.2	Air Leakage Resistance ASTM E283-04(12)

The tested specimen meets or exceeds the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-2017 for air infiltration at 75 Pa (1.57 psf).

Maximum Allowable	= 1.5 L/s/m^2 (0.3 cfm/ft^2)

Infiltration

Total Air Leakage	= 2.75 L/s (5.83 cfm)
Extraneous Air Leakage $_{Tare}$	= 0.49 L/s (1.03 cfm)
Net Air Leakage	= 2.27 L/s (4.80 cfm)
Air Infiltration Rate	= 1.1 L/s/m^2 (0.21 cfm/ft^2)

Paragraph	Test
9.3.3	Water Penetration Resistance ASTM E547-00(16)

3.4 L/ (min• m²) (5.0 gph/ft²)

No Leakage after 4 cycles of 5 minutes at 290 Pa (6.06 psf)

NOTE: Tested with and without insect screen

Paragraph	Test
9.3.4.2	Uniform Load Deflection at Design Pressure ASTM E330-14

No damage after positive	1920 Pa (40.10 psf) held for 10 seconds
No damage after negative	1920 Pa (40.10 psf) held for 10 seconds
Measured Deflection $_{Positive}$	= 1.78 mm (0.076 inches)
Measured Deflection $_{Negative}$	= 2.54 mm (0.100 inches)

Paragraph	Test
9.3.4.3	Uniform Load Structural Test ASTM E330-14

Horizontal Mullion

No damage after positive	2880 Pa (60.15 psf) held for 10 seconds
No damage after negative	2880 Pa (60.15 psf) held for 10 secon
Measured Permanent Set $_{Positive}$	= 0.10 mm (0.004 inches)
Measured Permanent Set $_{Negative}$	= 0.08 mm (0.003 inches)
Maximum Allowed (0.4%)	= 4.04 mm (0.159 inches)

NOTE: Deflection and Permanent Set measurements taken on the meeting rail over a 1006 mm (39.625") span.

Paragraph	Test
9.3.5	Forced Entry Resistance ASTM F588-14

Type A Window Assembly/ Grade 10*: = Pass

Test	
Disassembly	= No Entry
Lock Manipulation	= No Entry
Sash Manipulation	= No Entry
Test A1	= No Entry
Test A2	= No Entry
Test A3	= No Entry
Test A4	= No Entry
Test A5	= No Entry
Test A7	= No Entry
Hardware Manipulation Test	= No Entry
Sash Manipulation Test	= No Entry

NOTE: 1. **GRADE 10:* T1 = 5 minutes, L1 = 150 lbf (667 N), L2 = 75 lbf (333 N), L3 = 25 lbf (111 N)
2. Loads were held for 60 seconds.

Paragraph	Test
9.3.6.3	Deglazing Test ASTM E987-88(09)

Top Sash

Stiles – 230 N (51.71 lbf)	
Maximum Allowed	= 90% (100%)
Left	= 2.2%
Right	= 3.2%
Rails – 320 N (71.94 lbf)	
Maximum Allowed	= 90% (100%)
Top	= 6.0%
Meeting	= 7.0%

Bottom Sash

Stiles – 230 N (51.71 lbf)	
Maximum Allowed	= 90% (100%)
Left	= 3.8%
Right	= 6.0%
Rails – 320 N (71.94 lbf)	
Maximum Allowed	= 90% (100%)
Meeting	= 8.8%
Bottom	= 5.2%

NOTE: The glass bite was approximately 12.7 mm (0.5”)

This test report was prepared by National Certified Testing Laboratory (NCTL), for the exclusive use of the above named client and it does not constitute certification of this product. The results are for the particular specimen tested and do not imply the quality of similar or identical products manufactured or installed from specifications identical to the tested product. The test specimen was supplied to NCTL by the above named client. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen are to be drawn from the ASTM E330 test. Forced entry resistance test equipment used is in compliance with Section 7 of the ASTM F588 test method. Foam tape is mounted to the perimeter of the test buck prior to clamping to the test wall. It is the assertion of this laboratory that any film employed during testing does not affect measurement values. NCTL is a testing lab and assumes that all information provided by the client is accurate and does not guarantee or warranty any product tested or installed. The results in this report are actual tested values and are applicable to the specimen tested only, using the components and construction methods described herein.

Detailed drawings were available for laboratory records and compared to the test specimen at the time of this report. Component drawings were reviewed for product verification. The bill of materials contains details with any deviations noted. Ambient conditions during the referenced testing are available upon request. A copy of this report along with representative sections of the test specimen will be retained per applicable requirements by NCTL.

This report does not constitute certification or approval of the product, which may only be granted by a certification program validator or recognized approval entity. All tests were conducted in full compliance with the referenced specifications and/or test methods. Tests were performed in the order set forth by the applicable standard or specification. This report is the joint property of NCTL and the client to whom it is issued. Permission to reproduce this report by anyone other than NCTL and the client must be granted in writing by both of the above parties. This report may not be reproduced, except its entirety, without the written consent of NCTL.

For National Certified Testing Laboratories

Justin Bupp
Laboratory Manager

JLB/ bnr
Attachments
Appendix A - Revision Summary
Appendix B - Drawings

Appendix A

Revision Log

Identification	Date	Page & Revision
Original Issue	03/03/23	Not Applicable

Appendix B

Drawings

Component Drawings, with Applicable Part Numbers, Manufacturing and Modeling Details, were reviewed (as submitted) for Product Verification. Detailed assembly drawings showing wall thicknesses of all members, corner construction and hardware application are on file and have been compared to the test sample submitted.

(Reference: NCTL-110-26031-1)

See Attached Documentation;
any deviations noted.

Note: The above referenced component drawings (if applicable) along with representative sections of the test specimen will be retained by NCTL per applicable retention requirements. This testing facility assumes that all information provided by the client is accurate.

Test Specimen Complies With These Details. Any Deviation Is Noted.
NCTL-110-26031-1 By: JLB
Test Date: 03/01/23

BILL OF MATERIALS
-
ClimateGuard Double Hung 1199

ITEM NO.	DESCRIPTION	QUANTITY	PART NO.	SOURCE
1	JAMB	2	15090	BRT EXTRUSION
2	SILL	1	15087	BRT EXTRUSION
3	HEADER	1	15084	BRT EXTRUSION
4	EXPANDER	1	15001	BRT EXTRUSION
5	LATCH	1 OR 2	15019	BRT EXTRUSION
6	TOP RAIL	1	55114	BRT EXTRUSION
7	KEEPER RAIL	1	55103	BRT EXTRUSION
8	TOP STILES	2	15106	BRT EXTRUSION
9	LOCK RAIL	1	55104	BRT EXTRUSION
10	LIFT RAIL	1	55105	BRT EXTRUSION
11	LOWER STILES	2	15107	BRT EXTRUSION
12	SCREEN RAIL	2	55026	BRT EXTRUSION
13	SCREEN W/LEG	1	55025	BRT EXTRUSION
14	SCREEN HANDLE	1	55024	BRT EXTRUSION
15	JAMB GUIDE	2	2603/RS3169	CENTRAL PLASTIC
16	TOP SASH STOPS	2	1618/RS2720	CENTRAL PLASTIC
17	BOTTOM SASH STOP	2	2494/RS2860	CENTRAL PLASTIC

BILL OF MATERIALS
-
ClimateGuard Double Hung 1199

ITEM NO.	DESCRIPTION	QUANTITY	PART NO.	SOURCE
18	BOTTOM SASH INSERT	1	8014/RS3214	CENTRAL PLASTIC
19	VINYL GLAZING CHANNEL	20-50 FT/WIND	4523	CENTRAL PLASTIC
20	BALANCES	4	ALUMA TILT 5/8	CALDWELL MFG
21	BALANCE SHOE	4	16H70 & 16F70	CALDWELL / LCS
22	PIVOT BAR	4	16T319 & 5311101	CALDWELL / DECO
23	LOCK & KEEPER	1 SET OR 2	A09200/CO9015	TRUTH HARDWARE
24	TILT LATCH L&R	2 SETS	0370L/0370R	TKG
25	WEATHERSTRIP	20-60 FT	W23251NG000G	ULTRAFAB INC
26	MAIN FRAME GASKET	2	11318-00218	LAMATEK INC
27	CORNER SEELER	EACH CORNER	SM5504	SCHNEE- MOREHEAD INC
28	SCREWS FOR BALANCE	4	#8 X 1 – PH.FLAT – STL ZNC	MERCHANTS INC
29	SCREWS FOR MAIN FRAME	8	#8 X ¾ – PH.PAN – STL ZNC	MERCHANTS INC
30	SCREWS FOR SASHES	16	#8 X ¾ – PH.PAN – STL ZNC	MERCHANTS INC
31	SCREWS FOR LOCK	2 OR 4	#6 X ½ – PH.FLAT – STL ZNC	MERCHANTS INC
32	SCREWS FOR LATCH	8	#6 X ½ – PH.FLAT – STL ZNC	MERCHANTS INC
33	SCREWS FOR KEEPER	2 OR 4	#5 X ½ – PH.FLAT – STL ZNC	MERCHANTS INC

Test Specimen Complies With These Details. Any Deviation Is Noted.
NCTL-110-26031-1 By: JLB
Test Date: 03/01/23

BILL OF MATERIALS
-
ClimateGuard Double Hung 1199

ITEM NO.	DESCRIPTION	QUANTITY	PART NO.	SOURCE
34	BUG SWEEP	2 – 4 FT	#FN916-40	WEST & BARKER INC
35	SCREEN SPLINE	12 – 18 FT	#.175	DAPA PRODUCTS
36	SCREEN CORNER	4	#1036 BKA	VISION INDUSTRIE
37	SCREEN MASH	5 – 10 S/FT	FIBERGLASS	PHIFER INC
38	SCREEN SPRINGS	2	#2584	ADEPT INC
39	GLASS	2	¾ IG UNIT	CARDINAL / IN HOUSE
	MIN SIZE: 14” X 20”			
	MAX SIZE: 50” X 90			